

## Electronic Supplementary Information

### Fluorescence enhancement of flavonoids and its application in the ingredient determination for some traditional Chinese medicines by CE-LIF

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**Table S1 Fluorescence lifetime parameters of  $1.0 \times 10^{-4}$  mol/L quercetin before and after derivatization**

Samples	$\tau_1$ /ns	Rel%	$\tau_2$ /ns	Rel%	$\tau_{\text{average}}$ /ns
Quercetin	0.2918	93.22	3.0341	6.78	0.48
Quercetin+NaAC	0.3130	83.31	2.9413	16.69	0.75

**Table S2 The LODs and linear ranges for the flavonoids of different analysis methods**

Kaempferide (LOD)	Galangin (LOD)	Isorhamnetin (LOD)	Kaempferol (LOD)	Quercetin (LOD)	Linear range	Method	Reference
0.298 $\mu\text{M}$	0.346 $\mu\text{M}$	-	0.564 $\mu\text{M}$	1.434 $\mu\text{M}$	2.5-100 $\mu\text{M}$	CE-DAD	28
0.80 $\mu\text{M}$	-	-	0.83 $\mu\text{M}$	0.85 $\mu\text{M}$	4.0-40 $\mu\text{M}$	CE-AD	29
-	-	-	3.1 mg/kg	3.3 mg/kg	-	CE-DAD	30
-	-	-	15.8 $\mu\text{g/mL}$	19.1 $\mu\text{g/mL}$	50-1000 $\mu\text{g/mL}$	HPLC-ELSD	14
0.08 $\mu\text{g/mL}$	-	-	0.03 $\mu\text{g/mL}$	0.07 $\mu\text{g/mL}$	-	HPLC-DAD	31
-	0.3 $\mu\text{g/mL}$	-	0.3 $\mu\text{g/mL}$	0.2 $\mu\text{g/mL}$	1.0-50 $\mu\text{g/mL}$	HPLC-UV	32
-	0.007 $\mu\text{g/mL}$	-	0.007 $\mu\text{g/mL}$	0.007 $\mu\text{g/mL}$	0.02-1.0 $\mu\text{g/mL}$	HPLC-MS/MS	32

DAD: Diode array detection; ELSD: Evaporative light scattering detection.

**Table S3 Recovery of flavonoids in aster**

Analytes	Added amount (µg/g)	Found amount (µg/g)	Recoveries	RSD (n = 3)
kaempferol	0.573	0.540	94.2%	6.43%
	0.573	0.603	105%	
	0.573	0.607	106%	
quercetin	0.600	0.593	98.8%	5.81%
	0.600	0.627	105%	
	0.600	0.663	111%	

**Table S4 Recovery of flavonoids in galangal**

Analytes	Added amount (µg/g)	Found amount (µg/g)	Recoveries	RSD (n = 3)
galangin	0.700	0.625	89.3%	8.99%
	0.700	0.656	93.7%	
	0.700	0.742	106%	
kaempferol	1.39	1.17	84.2%	9.07%
	1.39	1.31	94.2%	
	1.39	1.41	101%	

**Table S5 Recovery of flavonoids in chamomile**

Analytes	Added amount ( $\mu\text{g/g}$ )	Found amount ( $\mu\text{g/g}$ )	Recoveries	RSD (n = 3)
kaempferide	1.13	1.05	92.9%	8.01%
	1.13	1.23	109%	
	1.13	1.16	103%	
galangin	2.25	2.16	96.0%	5.91%
	2.25	2.38	106%	
	2.25	2.40	107%	
isorhamnetin	0.650	0.617	94.9%	3.85%
	0.650	0.626	96.3%	
	0.650	0.666	102%	
kaempferol	0.716	0.655	91.5%	5.90%
	0.716	0.667	93.2%	
	0.716	0.727	102%	
quercetin	0.250	0.226	90.4%	7.03%
	0.250	0.241	96.4%	
	0.250	0.261	104%	

**Table S6 Recovery of flavonoids in tangerine peel**

Analytes	Added amount ( $\mu\text{g/g}$ )	Found amount ( $\mu\text{g/g}$ )	Recoveries	RSD (n = 3)
kaempferol	0.700	0.650	92.8%	7.59%
	0.700	0.716	102%	
	0.700	0.756	108%	

**Table S7 Recovery of flavonoids in cacumen biot**

Analytes	Added amount (µg/g)	Found amount (µg/g)	Recoveries	RSD (n = 3)
quercetin	0.362	0.340	93.9%	6.75%
	0.362	0.375	104%	
	0.362	0.386	107%	